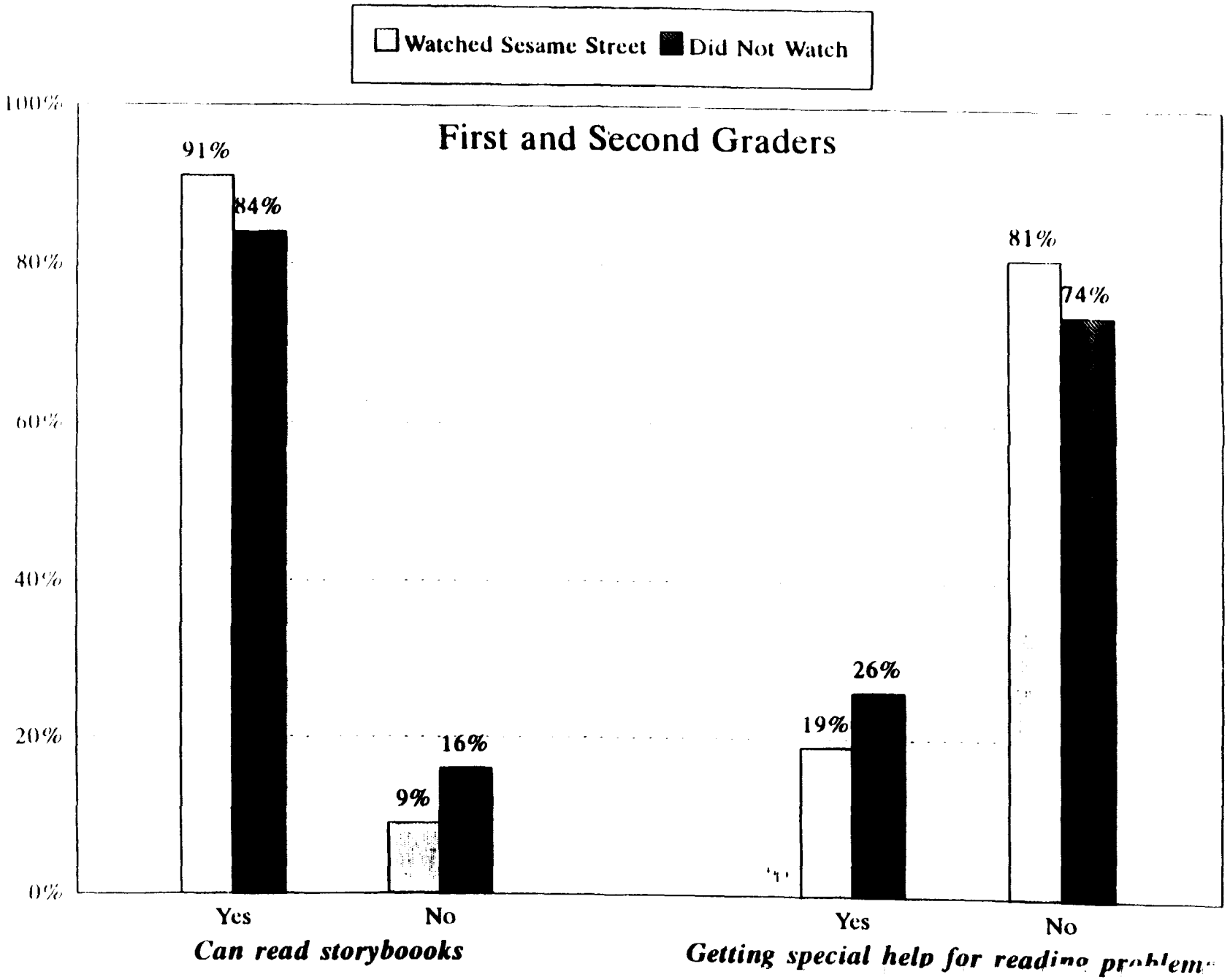
FIGURE 7

Children who watched Sesame Street before starting school are more likely to be reading and less likely to be getting special help for reading problems.



the number and type of parents present in the household; whether the child's mother worked full-time, full-year or part-time or part-year during the previous 12 months; and whether the child ever attended a center-based preschool program. (Table 10).

After adjusting for the effects of the other predictors, the odds on being able to read storybooks were 1.93 times higher for Sesame Street viewers than for non-viewers, whereas the adjusted odds on having to get special help for reading problems were only 71 percent as great among viewers as among non-viewers. Among first graders, the adjusted odds on reading storybooks were twice as great among viewers as among non-viewers, while the odds on getting special help were 85 percent as great (the latter effect was not statistically reliable for the first grade subgroup). (Figure 8A, Table 10). For second graders, the adjusted odds on reading storybooks were 1.79 times greater among viewers, while the odds on getting special help were only 64 percent as great. (Figure 8B, Table 10).

First and second graders who watched Sesame Street do not show less grade repetition or better academic standing. Associations between a history of Sesame Street watching and other indicators of academic performance and classroom adjustment in kindergarten and the early elementary grades were also examined. The measures of performance and adjustment were whether the child had had to repeat a grade; whether his or her current academic standing was in or below the middle of the class; and whether the parent received negative feedback from the child's current teacher about his or her academic performance or behavior in class. These measures were used as dependent variables in linear and logistic regression equations similar to those described above.

A history of having watched Sesame Street regularly was not significantly associated with any of these measures, although most of the observed relationships were in the "right" direction. That is, Sesame Street viewing was negatively correlated with grade repetition, being in the bottom half of the class, and receiving negative teacher feedback. However, the magnitudes of the regression coefficients were not sufficiently large to be deemed reliably different from zero.

FIGURE 8A

First Graders who watched Sesame Street before starting school are more likely to be reading.

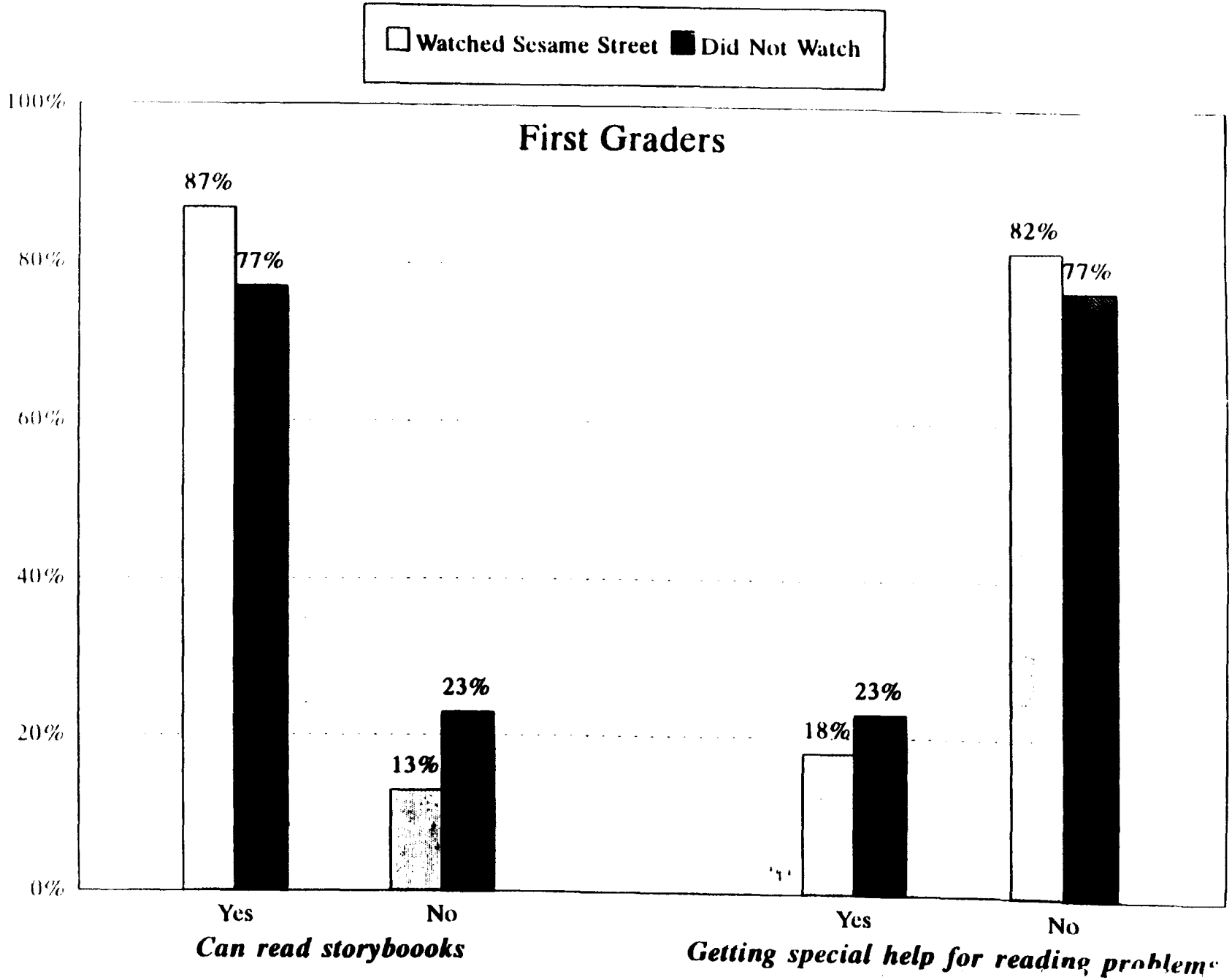
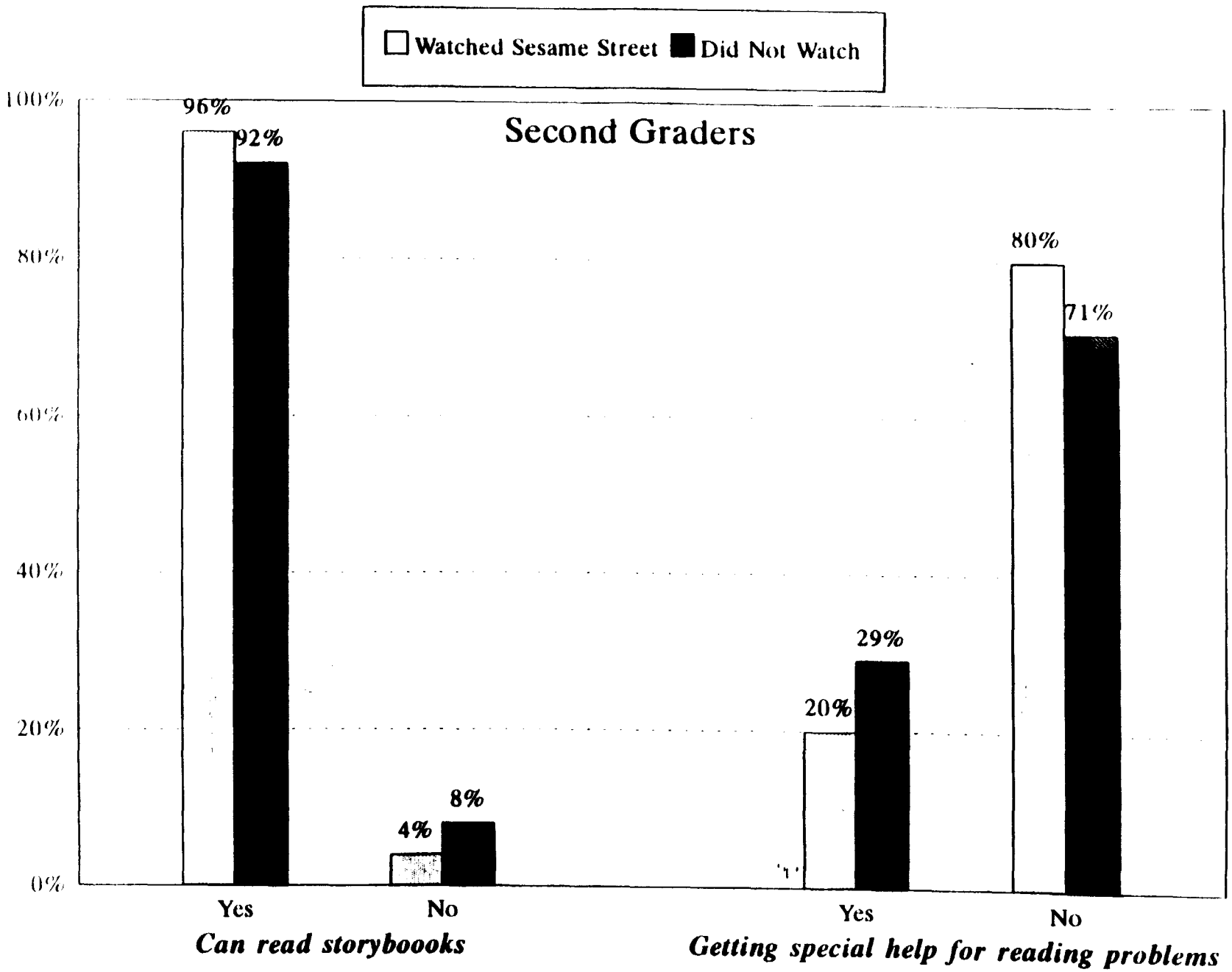


FIGURE 8B

Second graders who watched Sesame Street before starting school are more likely to be reading and less likely to be getting special help for reading problems.



SUMMARY AND CONCLUSIONS

Data from the 1993 National Household Education Survey were used to examine the extent to which young children from different family backgrounds and areas of the U.S. watch the educational television program Sesame Street. The survey data were also analyzed to determine whether viewing of the program is associated with signs of emerging literacy and numeracy in preschool children, and with better achievement and fewer academic problems in early elementary students. The study found ample evidence that Sesame Street is being viewed by most of the children who can be considered "at risk" of experiencing difficulties once they reach school. The study also found that viewers of Sesame Street were more likely to show signs of emerging literacy in the preschool years, more likely to be reading storybooks on their own in the first and second grades, and less likely to be receiving special help in school for reading problems.

Sesame Street Is Reaching Most Of The Children Who Stand To Benefit From It

Sesame Street was found to have an extremely broad and diverse body of child viewers. Eighty-six percent of kindergarten and first and second grade students were reported to have watched the program for a period of three months or more prior to beginning school. Seventy-seven percent of all preschoolers and 60 percent of all kindergartners were said to be current viewers of the program. Younger preschoolers were more likely to watch than older preschoolers or kindergartners, but Sesame Street was found to be reaching majorities of young children in virtually all demographic groups.

In contrast to many other educational aids, which are more likely to be used by families with more education and income, Sesame Street viewing is just as common or only slightly less common among children of parents who have less than a high school education or poverty-level or near-poverty incomes as among children of parents with more education and higher incomes. Indeed, young children who live in communities with high

concentrations of child poverty are more likely to be viewers of the program than preschoolers living in areas with less child poverty.

The survey found that young children who are not read to regularly by their parents are slightly less likely to watch Sesame Street than children who are read to regularly. Also, children who live outside the major metropolitan areas of the U.S. are slightly less likely to watch the program than children who live in large central cities or their suburbs. But even in these groups, majorities of preschool children were reported to be Sesame Street viewers.

Viewing is also less frequent in another subgroup of children who could hardly be considered disadvantaged, namely, those whose parents have graduate-school educations. The offspring of highly educated parents do watch Sesame Street, but apparently they stop watching the program at younger ages than children with less educated parents. This may be because the children of highly educated parents master the skills taught on Sesame Street at younger ages, and, after that, find the program less engaging.

Sesame Street Viewers Show More Signs of Emerging Literacy, Earlier Reading, and Less Tendency To Require Special Help for Reading Problems

There were indications in the National Household Education Survey data that the widespread viewing of Sesame Street may be helpful in stimulating emerging literacy in preschoolers and facilitating reading in school-aged children. Preschoolers who were or had been viewers of the program were more likely to be able to identify colors by name, count to twenty, recognize letters of the alphabet, and tell connected stories when pretending to read. The viewing-related differences were more pronounced among four-year-olds from low-income families than among those from non-poor families. The developmental differences between viewers and non-viewers remained significant when other relevant child and family characteristics, including frequency of parental reading and preschool program attendance, were controlled by means of regression analysis.

Among first and second graders, those who had watched Sesame Street prior to beginning school were more likely to be reading storybooks on their own and less likely to be receiving special help in school for reading problems. These differences held up after other child and family characteristics were controlled. On the other hand, differences between former viewers and non-viewers in the frequency of having repeated a grade, having received negative feedback from the teacher, or being in the lower half of the class were not statistically significant, though most trends were in the direction that favored Sesame Street viewers.

Thus, the survey data seem to support the contention that regular viewing of Sesame Street can aid children's preparation for school. Several caveats are in order, however. First of all, the survey was obviously not a controlled educational experiment in which children were randomly assigned to experimental or control groups. Families whose offspring watched Sesame Street were self-selected and the differences in the children's development may have been due to other factors that were correlated with but not caused by Sesame Street viewing (or non-viewing).

We attempted to control for potential confounding factors by carrying out regression analyses that took the effects of parent education, family income, race, minority language status, frequency of parental reading to the child, and other background variables into account. Significant differences between viewers and non-viewers remained after these statistical controls. It is certainly possible, though, that other factors were at work that were not captured in the regression equations.

For example, it is possible that children who suffer from dyslexia or other neurologically-based learning disabilities are less likely to become regular viewers of Sesame Street in the preschool years because they are not engaged by the program's emphasis on letter recognition. These same children would be more likely to experience reading difficulties when they reach elementary school. Thus, rather than Sesame Street viewing being a cause of earlier reading, it may be that Sesame Street non-viewing is <u>symptomatic</u> of

underlying developmental disorders. Without a randomized experimental design, it is not possible to rule out such alternative explanations.

It is also not possible with the current survey data to separate out completely the effects of Sesame Street viewing from the effects of watching other educational television programs aimed at young children, such as Mister Rogers, Barney and Friends, or Reading Rainbow. It is clear that many preschoolers watch more than one of these shows. Indeed, the NHES found that 67 percent of preschoolers and 59 percent of kindergartners watched two or more of the four PBS children's shows that were explicitly asked about in the questionnaire.

Generally speaking, the correlation and regression coefficients representing the association between current viewing of the other PBS shows asked about in the NHES and the developmental measures discussed above were not as strong as those for Sesame Street. In some instances, though, the coefficients for Reading Rainbow were stronger than those for Sesame Street. This is hardly surprising, given that preschoolers with more advanced skills are more likely to watch Reading Rainbow, which is aimed at an early elementary audience. Also, as discussed earlier, most children who watch Reading Rainbow are former or current viewers of Sesame Street. Thus, it can be argued that their emerging literacy should be attributed as much or more to Sesame Street as to Reading Rainbow. Such issues cannot be fully resolved without much more extensive data about children's viewing patterns and developmental trajectories (preferably data from studies that involve random assignment to viewing or non-viewing "treatments").

Even if we accept the supposition that the developmental differences between viewers and non-viewers observed in the NHES are at least partly due to the educational effects of Sesame Street, it is important to remember that the differences are not large. Moreover, preschoolers from low-income families who watch Sesame Street are still behind their peers from non-poor families in recognizing letters, counting to twenty, and other signs of emerging literacy. Clearly, whatever good it may be doing, Sesame Street is not a cure for

the handicapping effects of coming from an economically or educationally impoverished family.

It is also worth noting that the NHES found that young children who attended center-based preschool programs show more signs of emerging literacy than their counterparts who have not attended such programs. This finding underscores the importance of the Sesame Street Preschool Educational Program (Sesame Street-PEP). This project is training day care providers, including those who are based in homes rather than centers, to make use of Sesame Street and related activities to enrich the daily experiences of young children who are in their charge.

Finally, going beyond what the data unambiguously demonstrate, we feel that the survey findings support the belief that high-quality children's television programs in general, and Sesame Street in particular, can play an important role in aiding parents to be their children's first teachers and in helping young children get ready for school.

SURVEY METHODOLOGY AND DATA RELIABILITY

The National Household Education Survey (NHES) is a data collection system conducted by Westat, Inc. for the National Center for Education Statistics (NCES). Designed to address a wide range of education-related issues, the NHES collects data on high priority topics on a rotating basis. A nationwide telephone survey, it provides descriptive data on the educational activities of the U.S. population and offers policymakers, researchers, and educators a variety of statistics on the condition of education in the U.S.

Data for this report are from the NHES:1993 School Readiness component (SR).[10] Data collection took place from January through April of 1993. The sample was selected using random digit dialing (RDD) methods, and the data were collected using computer assisted telephone interviewing (CATI) technology. When appropriately weighted, the sample is designed to be nationally representative of all civilian, noninstitutionalized persons in the target age range in the 50 States and the District of Columbia, not just those living in telephone households.

Because the school readiness of young children is an area of considerable interest and debate in current educational policy, the NHES:93 was designed to provide national estimates on the topic. The first of the national education goals states that "by the year 2000, all children in America will start school ready to learn" (U.S. Department of Education 1990). There is general agreement within the educational community that how a child does in school depends in part on things that happen before he or she ever sets foot in a classroom. Measures of the development and well-being of children as they enter school can provide important indicators of how well young children as a group are being cared for and nurtured in our society.

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[10] For further information, see *National Household Education Survey of 1993: School Readiness Data File User's Manual* (May 1994) U.S. Department of Education, National Center for Education Statistics.

The objectives spelled out under the readiness goal draw attention to two groups of children whose developmental status is of particular concern to the Nation. One of these groups consists of young children who are disadvantaged, either economically or socially; the other, of young children with disabilities. Children can be economically disadvantaged because they live in households in which family income is below the poverty level. They can be socially disadvantaged because their parents have relatively low education levels or because the families lack other resources, such as proficiency in the English language. Children may also be disadvantaged because they belong to racial or ethnic minorities that have historically had less educational and employment opportunity and poorer access to adequate health and social services.

The education goals commit the Nation to increased participation by preschoolers in high-quality child care and early education programs. Increased access to these programs is seen as especially important for children who are disadvantaged or disabled.

The School Readiness Interview

The School Readiness component of the NHES:93 sampled 3- to 7-year-olds and 8- and 9-year-olds enrolled in second grade or below. Two instruments were used to collect information on the variables related to the school readiness of these children. The first instrument, a Screener administered to an adult member of the household, was used to determine whether any children of the appropriate ages lived in the household, to collect information on each household member, and to identify the appropriate parent/guardian to respond for the sampled child. If one or two eligible children resided in the household, interviews were conducted about each child. If more than two eligible children resided in the household, two children were randomly sampled as interview subjects. A School Readiness (SR) interview was conducted with the parent/guardian most knowledgeable about the care and education of each sampled child, usually the child's mother.

Topics included in the SR component were the developmental characteristics of preschoolers, school adjustment and teacher feedback to parents for kindergartners and primary students, center-based program participation, early school experiences, home activities with family members, health status, and exposure to educational public television programming.

Educational Television Questions In The NHES

Although the 1993 National Household Education Survey was not specifically designed to study the impact of educational television programming, the survey does afford an opportunity to gauge current viewing patterns of young children and the extent to which viewing of educational television programming is associated with school readiness and developmental accomplishments of American children. The success of these television programs in reaching children who may be considered at-risk for developmental and school difficulties is another subject which is addressable with the survey.

Because of time limitations and the need to address several other readiness-related topics in the survey, the number of questions devoted to viewing of public television children's programs was quite small. Specifically, the NHES:93 asked parents of preschoolers and children in kindergarten about regular viewing of Sesame Street, Barney and Friends, Mister Rogers' Neighborhood, and Reading Rainbow. The question wording was:

> "Please tell me whether (CHILD) watches any of the following television programs once a week or more, either at home or someplace else: Sesame Street; Mister Rogers' Neighborhood; Barney and Friends; Reading Rainbow."

Parents of children in kindergarten, first, and second grade were asked a retrospective question about Sesame Street viewing only:

"Before starting (kindergarten/first grade), did (CHILD) watch Sesame Street either at home or someplace else, at least once a week for a period of three months or more?"

There was also a sequence of questions about the total amount of television viewing the child did during different time periods of the day on weekdays, and the total hours of viewing on Saturdays and Sundays.

Although the number of television-related questions is small, responses to the items can be tabulated against a rich set of child and family characteristics, as well as a more limited set of community descriptors. The television viewing questions can also be related to questions about other education-related activities in the home, questions about the child's developmental status (for preschoolers), and questions about the child's standing and progress in school (for kindergartners and early elementary pupils).

Sample Sizes and Response Rates

The NHES:93 survey completed Screeners with 63,844 households, of which 9,936 contained at least one child eligible for the SR component. A sample of 12,905 children was selected for the SR component from these households. The response rate for the Screener was 82 percent. The completion rate for the SR interview, or the percentage of eligible sampled children for whom interviews were completed, was 90 percent, or 10,888 interviews. Thus, the overall response rate for the SR interview was 74 percent (the product of the Screener response rate and the SR completion rate).

The total SR population was divided into three segments, each of which was asked a somewhat different sequence of questions. The preschool segment was composed of children age 3 and older who were not yet enrolled in kindergarten. The unweighted number of cases in this group was 4,423. The kindergarten segment consisted of children who were currently enrolled in kindergarten. The unweighted number of cases in this group was 2,126. The primary school segment consisted of children enrolled in first or second grade. The

unweighted number of cases in this group was 4,277. (See Table 11 for other sample characteristics).

For the NHES:93, item nonresponse (the failure to complete some items in an otherwise completed interview) was very low. The item nonresponse rates for most variables in this report were less than 1 percent. Items with missing responses (i.e., don't know, refused, or not ascertained) were imputed using a hot-deck procedure. As a result, no missing values remain.

Data Reliability

Estimates produced using data from the NHES:93 are subject to two types of error, sampling and nonsampling errors. Nonsampling errors are errors made in the collection and processing of data. Sampling errors occur because the data are collected from a sample rather than a census of the population.

Nonsampling Errors

Nonsampling error is the term used to describe variations in the estimates that may be caused by population coverage limitations, data collection, processing, and reporting procedures. The sources of nonsampling errors are typically problems like unit and item nonresponse, the differences in respondents' interpretations of the meaning of the questions, response differences related to the particular time the survey was conducted, and mistakes in data preparation.

In general, it is difficult to identify and estimate either the amount of nonsampling error or the bias caused by this error. In the NHES:93, efforts were made to prevent such errors from occurring, and to compensate for them where possible. For instance, during the survey design phase, focus groups and cognitive laboratory interviews were conducted for the purpose of assessing respondent knowledge of the topics, comprehension of questions and

terms, and the sensitivity of items. The design phase also entailed over 500 staff hours of CAT instrument testing and a pretest in which over 275 interviews were conducted.

An important nonsampling error for a telephone survey is the failure to include persons who do not live in households with telephones. About 90 percent of all 3- to 7-year-olds live in households with telephones. Estimation procedures were used to help reduce the bias in the estimates associated with children who do not live in telephone households.[11] The population controls that are used to develop the weights for the NHES were based on Census Bureau figures that include families that live in non-telephone households. In weighting up groups that are underrepresented in a telephone survey, the assumption is made that members of those groups who were in telephone household at the time of the survey sample are similar to members who were not. This may or may not be the case, depending on the characteristic being estimated.

Another potential source of nonsampling error is the fact that most of the information about the child and family were collected from the same parent respondent. Thus, possible response biases on the part of that respondent (for example, a tendency to answer affirmatively to questions) might cause different items to appear more highly correlated than they really are. Some of the questions in the survey, such as the question as to whether the child had watched Sesame Street prior to starting school, are based on retrospective recall over a period of years. Responses to such questions tend to have more error than responses to questions dealing with circumstances or events in the present or immediate past. Finally, there may be some bias introduced because respondents are told that the survey is being conducted for the U.S. Department of Education. Parents may feel a need to respond in a way that is consistent with their views of what parents ought to be doing to help the development and learning of their children.

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[11]For additional information on telephone coverage issues and estimation procedures to correct for coverage biases, see J.M. Brick and J. Burke, *Telephone Coverage Bias of 14- to 21-year-olds and 3- to 5-year-olds* U.S. Department of Education, National Center for Education Statistics, report number NCES 92-101

Sampling Errors

The sample of telephone households selected for the NHES:93 is just one of many possible samples that could have been selected. Therefore, estimates produced from the NHES:93 sample may differ from estimates that would have been produced from other samples. This type of variability is called sampling error because it arises from using a sample of households with telephones, rather than all households with telephones.

The standard error is a measure of the variability due to sampling when estimating a statistic. Standard errors for estimates presented in this report were computed using a jackknife replication method. Standard errors can be used as a measure of the precision expected from a particular sample. The probability that a complete census count would differ from the sample estimate by less than 1 standard error is about 68 percent. The chance that the difference would be less than 1.65 standard errors is about 90 percent; and that the difference would be less than 1.96 standard errors, about 95 percent.

A simple approximation of the impact of the sample design on the estimates of the standard errors of the estimates that has proved useful in previous NHES surveys and in many other surveys is to adjust the simple random sample standard error estimate by the root design effect (DEFT). The DEFT is the ratio of the standard error of the estimate computed using the replication method discussed above to the standard error of the estimate under the assumptions of simple random sampling. A mean DEFT is computed by estimating the DEFT for a relatively large number of estimates and then averaging these DEFTs. A standard error for an estimate can then be approximated by multiplying the simple random sample standard error estimate by the mean DEFT.

In complex sample designs, like the NHES:93, the DEFT is typically greater than unity due to the clustering of the sample and the differential weights attached to the observations. In the NHES:93 both of these factors contributed to making the mean DEFT greater than unity.

The mean DEFT for the SR file was 1.2, where the average was computed over a range of estimated proportions. The standard deviation of the DEFTs for these selected estimates was about 0.2. The estimated DEFT computed for a particular estimate was typically between 1.0 and 1.5.

The mean DEFT did not vary considerably for subgroups defined by the size of the estimate or the path (kindergarten, preschool, or primary school). The mean DEFT for estimates by race and ethnicity were generally slightly higher. The mean DEFT for estimates restricted to a particular race or ethnic group ranged from 1.25 to 1.30.

To be conservative, **we recommend using a mean DEFT of 1.3** for approximating the standard error of the estimates. This value should result in approximate standard errors that are larger than the actual standard errors in most cases. Direct computation of the standard errors is recommended when the statistical significance of statements would be affected by small differences in the estimated standard errors.

Poverty Indicator

The poverty measure was constructed by comparing the number of people in the child's family to the household income. Children were considered to be poor if the income of their household was lower than the poverty threshold for the household size, as specified by the 1993 Federal Poverty Income Guidelines.

Household incomes were collected in ranges of $5,000, so that they could not be directly compared to the official poverty thresholds, which are given to the nearest dollar. The following are the guidelines we used:

Family Size	Poverty Threshold
2-3	$10,000
4-5	$15,000
6-7	$20,000
8-9	$25,000
10-11	$30,000
12	$35,000

Table 1. **Percentage of preschool children who watch Sesame Street once a week or more**

	All preschoolers*	3-year-olds	4-year-olds	5-year-olds**
Total population	8,606,600	3,889,400	3,713,500	976,300
Number who watch Sesame Street	6,607,800	3,124,100	2,785,700	676,000
Percentage of children who watch Sesame Street at least once a week	77%	80%	75%	69%
Sex				
Male	75%	79%	74%	64%
Female	79%	82%	76%	76%
Race/ethnicity				
White, non-Hispanic	74%	78%	73%	65%
Black, non-Hispanic	87%	88%	85%	89%
Hispanic	79%	82%	76%	77%
Asian/Pacific Islander	77%	81%	72%	–
Parents' highest education				
Less than high school	76%	81%	78%	60%
High school diploma	76%	78%	75%	73%
Some college	79%	84%	77%	69%
College degree	79%	84%	75%	72%
Graduate school	69%	73%	66%	67%
Household income				
$15,000 or less	75%	79%	72%	75%
$15,001 to $25,000	75%	79%	76%	61%
$25,001 to $35,000	81%	86%	78%	67%
$35,001 to $50,000	78%	81%	78%	66%
$50,001 to $75,000	77%	78%	76%	79%
More than $75,000	74%	78%	71%	–
Mother's first language				
English	77%	80%	76%	69%
Spanish	77%	79%	74%	–
Asian language	67%	–	–	–
Other language	73%	81%	67%	–
Family structure				
Birth mother & birth father	75%	79%	74%	67%
Birth mother only	79%	84%	75%	71%
Birth mother & stepfather	83%	76%	85%	88%
Other	80%	84%	81%	71%

Table 1. **Percentage of preschool children who watch Sesame Street once a week or more**

(continued)	All preschoolers*	3-year-olds	4-year-olds	5-year-olds**
Attends preschool				
Yes	76%	79%	75%	69%
No	78%	81%	74%	69%
Child was taken to library in last month				
Yes	77%	81%	76%	70%
No	76%	80%	74%	69%
Family member read to child in last week				
Yes	77%	81%	74%	72%
No	67%	67%	71%	–
Metropolitan residence				
Inside MSA	78%	82%	76%	73%
Outside MSA	72%	75%	72%	61%
Metropolitan residence by region				
Northeast	80%	84%	77%	74%
Inside MSA	83%	86%	79%	81%
Outside MSA	70%	75%	68%	–
South	76%	80%	73%	70%
Inside MSA	76%	80%	73%	70%
Outside MSA	76%	80%	72%	72%
Midwest	77%	80%	77%	66%
Inside MSA	79%	83%	78%	67%
Outside MSA	71%	72%	75%	63%
West	75%	78%	74%	70%
Inside MSA	78%	79%	75%	79%
Outside MSA	65%	71%	67%	–
Poverty within ZIP Code				
Less than 5 percent	76%	80%	74%	67%
5-9 percent	75%	79%	75%	62%
10-19 percent	78%	79%	77%	80%
20 percent or more	83%	88%	77%	80%

*Children 3 and over who are not yet in kindergarten or the first grade.
**Five-year-old preschoolers constitute a little more than one-quarter of all 5-year-olds, primarily those with birthdays in the last quarter of the calendar year
-- Insufficient cases for reliable estimate

Table 2. Percentage of kindergarten children who currently watch Sesame Street once a week or more

	All Kindergartners	4-year-olds	5-year-olds	6-year-olds
Total population	3,966,300	93,400	2,742,700	1,089,300
Number who watch Sesame Street	2,375,600	70,100	1,691,300	593,100
Percentage of children who watch Sesame Street	60%	75%	62%	54%
Sex				
Male	57%	–	60%	51%
Female	63%	–	64%	59%
Race/ethnicity				
White, non-Hispanic	54%	–	55%	50%
Black, non-Hispanic	76%	–	78%	73%
Hispanic	66%	–	66%	60%
Asian/Pacific Islander	70%	–	–	–
Parents' highest education				
Less than high school	64%	–	65%	65%
High school diploma	63%	–	64%	59%
Some college	63%	–	66%	54%
College degree	52%	–	53%	48%
Graduate school	47%	–	49%	–
Household income				
$15,000 or less	67%	–	69%	64%
$15,001 to $25,000	66%	–	70%	56%
$25,001 to $35,000	58%	–	59%	53%
$35,001 to $50,000	57%	–	55%	57%
$50,001 to $75,000	50%	–	54%	42%
More than $75,000	46%	–	46%	–
Mother's first language				
English	58%	–	60%	53%
Spanish	69%	–	70%	–
Asian language	59%	–	–	–
Other language	67%	–	–	–
Family structure				
Birth mother & birth father	57%	–	58%	51%
Birth mother only	65%	–	65%	62%
Birth mother & stepfather	64%	–	65%	–
Other	68%	–	74%	–

Table 2. Percentage of kindergarten children who currently watch Sesame Street once a week or more

(continued)

	All Kindergartners	4-year-olds	5-year-olds	6-year-olds
Child was taken to library in last month				
Yes	63%	–	63%	61%
No	58%	–	61%	49%
Family member read to child in last week				
Yes	60%	–	61%	56%
No	50%	–	–	–
Metropolitan residence				
Inside MSA	60%	76%	62%	53%
Outside MSA	58%	–	60%	57%
Metropolitan residence by region				
Northeast	62%	–	64%	54%
Inside MSA	66%	–	67%	59%
Outside MSA	47%	–	–	–
South	57%	–	59%	51%
Inside MSA	56%	–	59%	48%
Outside MSA	58%	–	58%	59%
Midwest	62%	–	64%	58%
Inside MSA	63%	–	64%	58%
Outside MSA	60%	–	64%	60%
West	60%	–	62%	55%
Inside MSA	59%	–	60%	52%
Outside MSA	68%	–	71%	–
Poverty within ZIP Code				
Less than 5 percent	54%	–	54%	50%
5-9 percent	60%	–	62%	53%
10-19 percent	66%	–	68%	60%
20 percent or more	70%	–	72%	68%

– Insufficient cases for reliable estimate.

Table 3. Percentage of kindergartners, first-graders, and second graders who watched Sesame Street before beginning school

	All kindergartners, 1st & 2nd graders	Kindergartners	1st graders	2nd graders
Total population	11,318,700	3,966,300	3,950,600	3,401,800
Number who watched Sesame Street	9,777,100	3,391,100	3,424,500	2,961,500
Percentage of children who watched Sesame Street	86%	86%	87%	87%
Age				
3 years	–	–	–	–
4 years	78%	78%	–	–
5 years	86%	86%	–	–
6 years	87%	86%	87%	–
7 years	87%	–	86%	88%
8 years	84%	–	–	84%
Sex				
Male	86%	87%	86%	85%
Female	87%	84%	87%	89%
Race/ethnicity				
White, non-Hispanic	85%	84%	86%	86%
Black, non-Hispanic	90%	88%	93%	89%
Hispanic	87%	88%	85%	87%
Asian/Pacific Islander	90%	88%	–	–
Parents' highest education				
Less than high school	82%	82%	80%	84%
High school diploma	85%	82%	87%	86%
Some college	88%	89%	87%	87%
College degree	88%	86%	87%	94%
Graduate school	88%	88%	89%	87%
Household income				
$15,000 or less	85%	82%	87%	85%
$15,001 to $25,000	85%	87%	84%	85%
$25,001 to $35,000	88%	88%	84%	91%
$35,001 to $50,000	86%	85%	87%	87%
$50,001 to $75,000	90%	87%	91%	92%
More than $75,000	88%	89%	90%	83%
Mother's first language				
English	86%	85%	87%	87%
Spanish	83%	84%	79%	85%
Asian language	90%	–	–	–
Other language	88%	94%	84%	85%
Family structure				
Birth mother & birth father	86%	86%	85%	87%
Birth mother only	87%	83%	90%	88%
Birth mother & stepfather	86%	86%	86%	86%
Other	89%	91%	89%	88%

Table 3. Percentage of kindergartners, first-graders, and second graders who watched Sesame Street before beginning school

(continued)

	All kindergartners, 1st & 2nd graders	Kindergartners	1st graders	2nd graders
Attended preschool				
Yes	88%	87%	88%	88%
No	83%	81%	83%	84%
Child was taken to library in last month				
Yes	89%	89%	(not asked)	(not asked)
No	83%	83%		
Family member read to child in last week				
Yes	87%	87%	88%	87%
No	84%	78%	83%	86%
Family received AFDC				
Yes	86%	84%	88%	88%
No	86%	86%	86%	87%
Metropolitan residence				
Inside MSA	87%	87%	87%	88%
Outside MSA	84%	82%	85%	85%
Metropolitan residence by region				
Northeast	89%	88%	90%	90%
Inside MSA	91%	90%	90%	93%
Outside MSA	82%	80%	87%	79%
South	86%	85%	86%	87%
Inside MSA	86%	85%	86%	87%
Outside MSA	86%	85%	87%	87%
Midwest	86%	85%	87%	88%
Inside MSA	87%	85%	86%	90%
Outside MSA	84%	83%	87%	84%
West	85%	85%	85%	84%
Inside MSA	86%	87%	86%	84%
Outside MSA	78%	75%	74%	85%
Poverty within ZIP Code				
Less than 5 percent	88%	87%	88%	90%
5-9 percent	83%	82%	85%	84%
10-19 percent	87%	87%	86%	88%
20 percent or more	86%	87%	89%	84%

– Insufficient cases for reliable estimate

Table 4. **Association Between Watching of Sesame Street (or Reading Rainbow) and Signs of Emerging Literacy In 4-Year-Old Preschoolers, By Poverty Status of Family**

Sign of emerging literacy	Percentage showing sign of emerging literacy: Poor Children	Non-poor Children	Total
Tell connected story when pretending to read			
Children who watch Sesame Street (or Reading Rainbow)	68.3%	78.1%	75.5%
Children who watch neither	54.8%	77.7%	70.7%
All children	65.1%	78.0%	74.5%
Contingency coefficient	(.12)	(.00)	(.05)
Identify colors			
Children who watch Sesame Street (or Reading Rainbow)	70.7%	89.3%	84.5%
Children who watch neither	61.9%	91.8%	82.7%
All children	68.6%	89.8%	84.2%
Contingency coefficient	(.08)	(.03)	(.02)
Recognize most letters			
Children who watch Sesame Street (or Reading Rainbow)	43.3%	64.0%	58.7%
Children who watch neither	40.9%	56.3%	51.6%
All children	42.7%	62.5%	57.2%
Contingency coefficient	(.02)	(.06)	(.06)
Count to 20			
Children who watch Sesame Street (or Reading Rainbow)	51.2%	67.9%	63.6%
Children who watch neither	36.4%	66.0%	57.0%
All children	47.7%	67.5%	62.2%
Contingency coefficient	(.13)	(.02)	(.06)
Write and draw rather than scribble			
Children who watch Sesame Street (or Reading Rainbow)	77.6%	80.4%	79.7%
Children who watch neither	55.6%	78.1%	71.2%
All children	72.4%	79.9%	77.9%
Contingency coefficient	(.21)	(.02)	(.08)
Write own name			
Children who watch Sesame Street (or Reading Rainbow)	53.4%	75.9%	70.1%
Children who watch neither	55.7%	78.1%	71.3%
All children	53.9%	76.3%	70.3%
Contingency coefficient	(.02)	(.02)	(.01)

Table 5. Association Between Watching of Sesame Street and Signs of Emerging Literacy In 4-Year-Old Preschoolers, By Poverty Status of Family

	Percentage showing sign of emerging literacy		
Sign of emerging literacy:	Poor Children	Non-poor Children	Total
Tell connected story when pretending to read			
Children who watch Sesame Street	67.7%	77.7%	75.2%
Children who do not watch Sesame Street	58.6%	79.0%	72.7%
All children	65.1%	78.0%	74.5%
Contingency coefficient	(.09)	(.01)	(.03)
Identify colors			
Children who watch Sesame Street	70.5%	89.2%	84.5%
Children who do not watch Sesame Street	64.2%	91.9%	83.3%
All children	68.6%	89.8%	84.2%
Contingency coefficient	(.06)	(.04)	(.01)
Recognize most letters			
Children who watch Sesame Street	43.4%	63.8%	58.6%
Children who do not watch Sesame Street	41.1%	58.2%	52.9%
All children	42.7%	62.5%	57.2%
Contingency coefficient	(.02)	(.05)	(.05)
Count to 20			
Children who watch Sesame Street	51.5%	67.3%	63.3%
Children who do not watch Sesame Street	38.4%	68.2%	58.9%
All children	47.7%	67.5%	62.2%
Contingency coefficient	(.12)	(.01)	(.04)
Write and draw rather than scribble			
Children who watch Sesame Street	76.9%	80.1%	79.3%
Children who do not watch Sesame Street	61.5%	79.3%	73.7%
All children	72.4%	79.9%	77.9%
Contingency coefficient	(.15)	(.01)	(.06)
Write own name			
Children who watch Sesame Street	53.8%	75.7%	70.2%
Children who do not watch Sesame Street	54.3%	78.2%	70.8%
All children	53.9%	76.3%	70.3%
Contingency coefficient	(.01)	(.03)	(.01)